

- 6 **Population Reference Bureau.** *Family Planning Worldwide. 2002 Data Sheet.* Washington DC: PRB, 2002 (www.prb.org/pdf/FamPlanWorldwide_Eng.pdf).
- 7 **Trussell J.** Contraceptive efficacy. In: Hatcher RA, Trussell J, Stewart F, et al, eds. *Contraceptive technology*, 18th ed. New York: Ardent Media, Inc, 2004.
- 8 **Singh S, Darroch JE, Vlassoff M, et al.** *Adding it up. The benefits of investing in sexual and reproductive health care.* New York: The Alan Guttmacher Institute and UNFPA, 2004 (www.guttmacher.org/pubs/addingitup.html).
- 9 **UNAIDS.** *AIDS epidemic update, 2004.* Geneva: UNAIDS, 2004.
- 10 **USAID, UNAIDS, WHO, UNICEF, the Policy Project.** Coverage of selected services for HIV/AIDS prevention, care and support in low and middle income countries in 2003. Washington DC: The Policy Project, 2004.
- 11 **Alan Guttmacher Institute.** *Sharing responsibility: women, society and abortion worldwide.* New York: AGI, 1999 (www.guttmacher.org/pubs/sharing.html).
- 12 **Iltano N.** Africa's family-planning funding drought. *Christ Sci Monitor*, 2003 Nov 5 [cited 2003 Nov 11];[5 screens] [Available from www.csmonitor.com/2003/1105/p07s02-waaf.html].
- 13 **Setty-Venugopal V, Jacoby R, Hart C.** Family planning logistics: strengthening the supply chain. *Popul Reports Series J* 2002 Winter;(51):1-23.

Distribution and risk factors of hepatitis B, hepatitis C, and HIV infection in a female population with "illegal social behaviour"

Parenteral exposure is a well established risk factor for hepatitis C virus (HCV) infection.^{1,2} However, the role of the sexual route in the transmission of hepatitis C has remained controversial.³ There are few studies carried out to evaluate these high risk groups in Iran. We conducted this study to survey the distribution of HCV infection as well as HBV and HIV infection in a female population with "illegal social behaviour."

We surveyed 196 females arrested by the police force in an analytical cross sectional study during the summer of 2002. They were mostly suspected of drug addiction, drug dealing, prostitution, and vagrancy. It was emphatically stated that there would be no additional penalty if anyone among the study population was not cooperative. Ten cases out of 206 females who had been initially selected for the study refused to partake in

the study. Another 196 females gave written informed consent. All individuals were asked about potential risk factors of blood borne virus' acquisition in a voluntary interview. Then all were screened for anti-HCV antibody, HBsAg, and anti-HIV antibody.

Their mean age was 29.3 (SE 0.7) years. There was a history of prostitution in 79.0%, non-injecting drug use (IDU) in 15.3% and IDU in 2.0%. A total of six HCV positive cases (3.1%) and three HBsAg positive cases (1.5%) were found. There were no HIV positive cases. HCV prevalence was significantly higher in individuals with history of non-IDU and IDU ($p = 0.01$ and $p = 0.005$, respectively). Out of 149 sex workers, with the mean period of prostitution was 11.3 (SE 1.7) months; four cases (2.7%, 95% CI: 0.7 to 3.4) were HCV positive and one case (0.7%, 95% CI: 0 to 1.7) was HBsAg positive. There was no sexual contact related variable significantly associated with HCV seropositivity in the sex worker population (table 1). Only one of these four cases who were anti-HCV Ab positive had a history of non-IDU, and none of them had a history of IDU.

Although we have been unable to ascertain the source of the HCV positivity in these women with multiple sexual exposures, it seems that promiscuity is not an important risk factor for hepatitis C because of the low HCV prevalence rate in general population in Iran (0.12%),² the low rate of promiscuity in Iran because of religion (Islamic) and social culture, the low mean period of prostituting in our study sample, or the regular use of condoms in almost all of the study population. However, it may be also because of the low infectivity of HCV in heterosexual intercourse. Moreover, in our study, none of HCV positive cases in the sex worker population study had a history of IDU while many of the studies failed to carefully exclude HCV acquisition from non-sexual sources.⁴⁻⁶ However, IDU is a much more significant risk factor for HCV infection than extramarital sexual contact in Iran. Therefore, screening for HCV infection is advocated in injecting drug users in order to prevent the spread of HCV.

M R Jahani

Health Headquarters of IRI Police Force, Tehran, Iran

S-M Alavian

Tehran Hepatitis Research Center, Tehran, Iran

H Shirzad

Health Headquarters of IRI Police Force, Tehran, Iran

A Kabir, B Hajarizadeh

Tehran Hepatitis Research Center, Tehran, Iran

Correspondence to: Seyed Moayed Alavian, No 92, Vesal Shirazi Ave, PO Box 14155/4656, Tehran, Iran; manager@iranhepgroup.info, sm_alavian@yahoo.com

doi: 10.1136/sti.2004.011114

Accepted for publication 28 June 2004

References

- 1 **Di Bisceglie AM.** Hepatitis C. *Lancet* 1998;**351**:351-5.
- 2 **Alavian SM, Gholami B, Masarrat S, et al.** Risk factors in Iranian volunteer blood donors, a case control study. *J Gastroenterol Hepatol* 2002;**17**:1092-7.
- 3 **Alter MJ.** Inapparent transmission of hepatitis C: footprints in the sand. *Hepatology* 1991;**14**:389-91.
- 4 **Terrault NA.** Sexual activity as a risk factor for hepatitis C. *Hepatology* 2002;**36**(Suppl):S99-S105.
- 5 **Zaaijer HL, Cuyper HT, Reesink HW, et al.** Reliability of polymerase chain reaction for detection of hepatitis C virus. *Lancet* 1993;**341**:722-4.
- 6 **Zylberberg H, Thiers V, Lagorce D, et al.** Epidemiological and virological analysis of couples infected with hepatitis C virus. *Gut* 1999;**45**:112-16.

Collecting the essence of man: semen collection for HIV transmission studies in sub-Saharan Africa

Efforts to understand male to female sexual transmission of HIV must include semen analysis. Estimating sexual infectiousness using blood HIV RNA concentrations as a surrogate marker may be biased.¹ Semen is routinely collected in Europe and the United States for HIV research² and has recently been collected in clinical trials in sub-Saharan Africa³; however, there are no published data about issues associated with semen collection.

We conducted a study at the Central Hospital in Lilongwe, Malawi, from January 2000 to June 2001 to better understand the relation between trichomonas and HIV-1 viral load.⁴ Men attending STI and dermatology clinics consented and were enrolled. All men with *Trichomonas vaginalis* and a comparison group of HIV positive men attending the dermatology clinic without trichomonas or STI symptoms were asked to provide semen. Both male and female clinic staff asked men to donate semen at the baseline visit. If subjects agreed to provide semen they were given a wide mouthed specimen container, escorted to a designated toilet near the examination rooms, and asked to provide semen by masturbation. To determine independent predictors of collection, a multivariate logistic regression model was created utilising those factors associated ($p \leq 0.10$) with semen collection on bivariate analyses. Eight randomly selected subjects who had been asked to donate semen were invited to participate in a focus group about semen collection.

In all, 212 men were asked to provide semen and 145 succeeded (table 1). The table shows the adjusted results controlling for factors associated with collection. Having a

Table 1 Comparison of different factors between HCV positive and HCV negative cases of prostitute groups to determine risk factors associated with HCV infection

	HCV positive (n = 4)	HCV negative (n = 145)	p Value
Age (years)	19.5 (SE 1.5)	28.3 (0.7)	NS
Literacy level			NS
Illiterate or elementary	1 (25.0%)	41 (29.5%)	
Secondary	3 (75.0%)	90 (64.7%)	
Advanced	0	8 (5.8%)	
Homosexuality (yes/no)	2/2 (50.0%)	61/79 (43.6%)	NS
History of STD (yes/no)	0/4 (0%)	22/118 (15.7%)	NS
Average number of weekly partners			NS
One or less	2 (50.0%)	47 (35.1%)	
Two to four	2 (50.0%)	73 (54.5%)	
More than four	0	14 (10.4%)	
Duration of prostituting (month)	10.7 (SE 4.8)	11.3 (SE 1.8)	NS
Regular use of condom (yes/no)	4/0 (100%)	120/23 (83.9%)	NS